U.S. ATLAS Computing and Physics

Jim Shank
Boston University
DOE/NSF Review of LHC Computing
Germantown
8 July, 2004

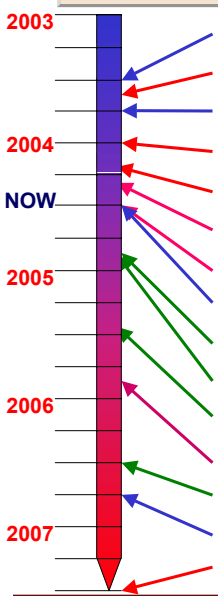
Overview

- ATLAS Events since the January Review
- ATLAS Milestones
- Manpower issues in international ATLAS core sw
- US ATLAS Computing and Physics budget profile
- Scope Control/Project tracking/Reporting
- Research Program Management Plan
- M&O/Computing budget split
- Base Program Issues
- Tier 2 Center Issues
- LCG Issues
  - Grid Interoperability, Open Science Grid
- Recommendations from last year

Events since Jan. 2004 Review

- New Budget Guidance
- ATLAS Data Challenge 2 Started
  - ~ 2 months late
- ATLAS Combined Test Beam Started
- Progress on the Open Science Grid
  - Series of grid steering group meetings
    - Full OSG meeting in Boston 9-10 Sept., 2004.
  - Grid 3 still our workhorse for DC2
- ATLAS DB management overhaul
  - Torre Wenaus/Richard Hawking co-leaders of broad ATLAS DB effort
- Physics Analysis (see I. Hinchliffe/S. Rajagopalan talks)
  - Physics Analysis Tools, Distributed Analysis (ARDA), Analysis Support Group

ATLAS Computing Timeline



- POOL/SEAL release (done)
- ATLAS release 7 (with POOL persistency) (done)
- LCG-1 deployment (done)
- ATLAS complete Geant4 validation (done)
- ATLAS release 8 (done)
- DC2 Phase 1: simulation production (in progress)
- DC2 Phase 2: intensive reconstruction (the real challenge!)
- Combined test beams (barrel wedge)
- Computing Model paper
- Computing Memorandum of Understanding
- ATLAS Computing TDR and LCG TDR
- DC3: produce data for PRR and test LCG-n
- Physics Readiness Report
- Start commissioning run
- **GO!**

From D. Barberis LHCC Review 29 June, 2004

ATLAS High-Level Milestones (1)

- 10 Sept. 2003 — POOL integration (Release 7)
  Done 11 Sept. 2003
- 31 Dec. 2003 — Geant4 validation for DC2 complete
  Done 17 Jan. 2004
- 27 Feb. 2004 — Software Release 8 (ready for DC2/1)
  Done 31 Mar. 2004
- 1 April 2004 — DC2 Phase 1 starts
  Done 24 June 2004
- 1 May 2004 — Ready for combined test beam
  Done 1 May 2004
- 1 June 2004 — DC2 Phase 2 starts
  Delayed to 16 Aug. 2004
- 31 July 2004 — DC2 Phase 2 ends
  Delayed to 15 Sept. 2004

From D. Barberis LHCC Review 29 June, 2004

ATLAS High-Level Milestones (2)

- 30 Nov. 2004 — Computing Model paper
  On track (depends on DC2 results)
- 31 Dec. 2004??? — Computing MOU
  Work in progress
- 30 June 2005 — Computing TDR
  On track (editing committee appointed)
- 30 Sept. 2005 — Software & infrastructure fully functional for the start of DC3
- 31 Mar. 2006 — End of DC3. Computing model fully exercised for “real” and simulated data
- 30 June 2006 — Physics Readiness Report
- 2 October 2006 — Ready for Cosmic Ray Run

From D. Barberis LHCC Review 29 June, 2004

Core Software Manpower (2)

From D. Barberis LHCC Review 29 June, 2004

- Several pledges of additional manpower from Germany (BMBF (1) and MPI (0.5)), France IN2P3 (0.5), Italy (2), Israel (1), UK (3)
- What materialized:
  - Database contribution from Israel (1 FTE at CERN since Jan'04)
  - Database contribution from Mainz (~1 FTE since Mar'04)
  - Infrastructure (code mgt) from UK (~0.5 FTE since May'04)
  - Infrastructure (librarian) from CERN (1 FTE since Jun'04)
  - Infrastructure (release coord.) from Taiwan (0.3 FTE starting Jul'04)
    - But in the meantime we lost 2 experienced FTEs from Infrastructure
- Still missing:
  - work on database integration between different systems (TC, online, offline) (approx. 2-3 FTEs)
  - more infrastructure support for remote developers and users (~4 FTEs)

Research Program Funding Profile (shown at the Jan. 2004 Review at FNAL)

U.S. ATLAS Research Program Target Chart (AYk$s)

Category	WBS	Description	FY04	FY05	FY06	FY07	FY08
	2.1	Physics	156	161	165	169	174
Computing	2.2	Software	2,467	3,611	4,424	5,234	6,474
	2.3	Facilities	2,010	4,023	6,853	9,394	9,952
	2.0	**Total Computing**	**4,633**	**7,795**	**11,442**	**14,797**	**16,600**
	3.1	Silicon	144.79	570.07	1,169.94	1,359.91	1,350.71
	3.2	TRT	297.16	586.53	497.17	479.71	469.91
	3.3	Liquid Argon	1,297.58	1,644.34	2,111.39	1,906.91	1,946.45
	3.4	Tile	382.02	541.25	931.93	1,166.72	798.40
	3.5	Endcap Muon	1,057.28	1,582.42	1,513.16	1,094.00	865.26
M&O	3.6	Trigger/DAQ	120.43	98.78	892.79	1,064.70	809.54
		**Common Funds Cat. B (included in subsystems above)	248.00	206.83	584.57	815.08	-
	3.7	Common Funds Cat. A	672.70	959.22	1,308.51	1,934.04	1,962.94
	3.8	Outreach	28.00	34.99	45.49	48.84	55.68
	3.9	Program Management	221.41	982.70	1,014.44	1,040.82	1,067.88
	3.10	Technical Coordination	-	874.65	899.14	922.52	946.50
	3.0	**Total M&O**	**4,201**	**7,875**	**10,484**	**11,018**	**10,193**
	4.1	Silicon Upgrade R&D	159	499	1,549	1,653	2,765
Upgrades	4.2	Liquid Argon Upgrade R&D	-	-	509	516	566
	4.0	**Total Upgrades**	**159**	**499**	**2,057**	**2,168**	**3,331**
Subtotal (Comput.+ M&O + Upgrades)		Subtotal U.S. ATLAS Research Program	8,993	16,169	23,983	27,983	29,124
Management Reserve		Management Reserve (%)	36.5%	29.4%	30.5%	25.5%	25.3%
		Management Reserve	3,287	4,751	7,317	7,137	7,376
Total U.S. ATLAS Research Program		Total U.S. ATLAS Research Program	12,280	20,920	31,300	35,120	36,500
		DOE Guidance	7,280	13,420	21,300	22,620	24,000
Guidance		NSF Guidance	5,000	7,500	10,000	12,500	12,500
		Total Guidance	12,280	20,920	31,300	35,120	36,500
Balance		Balance (Guidance - Research Program)	0	0	0	0	0.00

Research Program (shown at the Jan. 20

We need 12,207 k$, but 9,952 preserves

25% MR

U.S. ATLAS Research Program Target Chart (AY k$s)

Category	WBS	Description	FY04	FY05	FY06	FY07	FY08
Computing	2.1	Physics	156	161	165	169	174
	2.2	Software	2,467	3,611	4,424	5,234	5,474
	2.3	Facilities	2,010	4,023	6,853	9,394	9,952
	2.0	**Total Computing**	**4,633**	**7,795**	**11,442**	**14,797**	**15,600**
M&O	3.1	Silicon	144.79	570.07	1,169.94	1,359.91	1,350.71
	3.2	TRT	297.16	586.53	497.17	479.71	469.91
	3.3	Liquid Argon	1,297.58	1,644.34	2,111.39	1,906.91	1,946.45
	3.4	Tile	362.02	541.25	931.93	1,166.72	798.40
	3.5	Endcap Muon	1,057.28	1,582.42	1,613.16	1,094.00	885.26
	3.6	Trigger/DAQ	120.43	98.78	892.79	1,064.70	809.54
		**Common Funds Cat. B (included in subsystems above)	248.00	206.83	584.97	815.08	-
	3.7	Common Funds Cat. A	672.70	859.22	1,308.51	1,934.04	1,062.94
	3.8	Outreach	28.00	34.99	45.49	48.84	55.68
	3.9	Program Management	221.41	982.70	1,014.44	1,040.82	1,067.88
				874.65	899.14	922.52	946.50
			01	7,875	10,484	11,018	10,193
			59	499	1,549	1,653	2,765
				-	509	516	566
			59	499	2,057	2,168	3,331
			8,993	16,169	23,983	27,983	29,124
Management Reserve		Management Reserve (%)	36.5%	29.4%	30.5%	25.5%	25.3%
		Management Reserve	**3,287**	**4,751**	**7,317**	**7,137**	**7,376**
Total U.S. ATLAS Research Program		**Total U.S. ATLAS Research Program**	**12,280**	**20,920**	**31,300**	**35,120**	**36,500**
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		NSF Guidance	5,000	7,500	10,000	12,500	12,500
		Total Guidance	**12,280**	**20,920**	**31,300**	**35,120**	**36,500**
Balance		Balance (Guidance - Research Program)	0	0	0	0	0.00

Full talks from Jan. Review at:

http://agenda.cern.ch/age?a036695

Reasonable MR up to FY07

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U.S. ATLAS Research Program Target Chart (AY k$s)

as of June 2004 Strawman Guidance

Category	WBS	Description	FY04	FY05	FY06	FY07	FY08
Computing	2.1	Physics	156	161	165	169	174
	2.2	Software	2,467	3,611	4,424	5,234	5,474
	2.3	Facilities	2,010	4,023	6,853	9,394	9,952
	2.0	**Total Computing**	**4,633**	**7,795**	**11,442**	**14,797**	**15,600**
M&O	3.1	Silicon	206	505	1,157	1,340	1,351
	3.2	TRT	496	583	491	379	463
	3.3	Liquid Argon	1,443	1,656	2,028	1,915	2,093
	3.4	Tile	669	541	932	1,167	798
	3.5	Endcap Muon	1,058	1,667	1,558	882	997
	3.6	Trigger/DAQ	130	114	1,065	1,294	810
		**Common Funds Cat. B (included in subsystems above)	292	274	501	866	1,610
	3.7	Common Funds Cat. A	690	859	1,211	1,274	1,493
	3.8	Outreach	28	35	45	49	56
	3.9	Program Management	221	983	1,014	1,041	1,068
	3.10	Technical Coordination	-	875	899	923	947
	3.0	**Total M&O**	**4,941**	**7,818**	**10,401**	**10,263**	**10,075**
Upgrades	4.1	Silicon Upgrade R&D	-	499	1,549	1,653	2,765
	4.2	Liquid Argon Upgrade R&D	-	-	509	516	566
	4.0	**Total Upgrades**	-	**499**	**2,057**	**2,168**	**3,331**
Subtotal (Comput.+ M&O + Upgrades)		**Subtotal U.S. ATLAS Research Program**	**9,574**	**16,112**	**23,900**	**27,228**	**29,006**
Management Reserve		Management Reserve (%)	-0.3%	15.2%	24.0%	16.1%	13.8%
		Management Reserve	(26)	**2,447**	**5,733**	**4,392**	**3,994**
Total U.S. ATLAS Research Program		**Total U.S. ATLAS Research Program**	**9,548**	**18,559**	**29,633**	**31,620**	**33,000**
Guidance (June 2004)		DOE Guidance	7,270	12,920	21,300	22,620	24,000
		NSF Guidance (See Note)	2,278	5,639	8,333	9,000	9,000
		Total Guidance	**9,548**	**18,559**	**29,633**	**31,620**	**33,000**
Guidance (Feb 2004)		DOE Guidance	7,270	12,920	21,300	22,620	24,000
		NSF Guidance	3,500	4,500	7,000	9,500	12,000
		Total Guidance	**10,770**	**17,420**	**28,300**	**32,120**	**36,000**
Guidance Difference			(1,222)	1,139	1,333	(500)	(3,000)

NSF Guidance Note
The NSF funding numbers below are shown on a fiscal year monthly spending plan above.
NSF funding breakdown: 9/04 = 3.5M; 5/05 = 5.25M; 2/06 = 6.75M

J. Sl

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Computing/Phys. Budget Profile

	All numbers are AY k$					
	FY03	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**
rp guidance	3338	4633	7795	11442	14797	15600
sw	2381	2467	3611	4424	5234	5474
T1	957	1749	2978	4540	6141	8627
DC/prod.		261	398	568	583	598
T2			547	1644	2670	3082
LCG Common project			100	100		
Physics		156	161	165	169	174
Total	3338	4633	7794	11442	14796	17955
RP-Total	**0**	**0**	**0**	**0**	**0**	**-2355**
Total Facilities:	957	2010	4023	6853	9394	12307

The Research Program Priorities FY04

US ATLAS Research Program FY04 Program + MR Budget (by priority)

			Project $s			Management Reserve			
			Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Priority 6	Total
	Institution	DOE/NSF	(AYk$s)	(AYk$s)	(AYk$s)	(AYk$s)	(AYk$s)	(AYk$s)	(AYk$s)
Computing									
Physics	LBNL	DOE	-	156.00	-	-	-	-	156.00
Software	ANL	DOE	382.2	375.1	-	-	150.0	-	907.3
	BNL	DOE	354.2	98.9	73.3		-	-	526.4
	LBNL	DOE	547.4	520.6	-	-	-	160.0	1,228.0
	Pittsburgh	DOE	57.5	57.5	-	-	-	-	115.0
	Undecided					-			-
	Universities		-	-	-	160.0	-		160.0
Facilities	BNL	DOE	1,171.1	752.9		160.0	160.0		2,244.0
	UTA	DOE	43.0	43.0					86.0
	Universities						50.0	30.0	80.0
Total DOE			2,555.40	2,004.00	73.30	320.00	360.00	190.00	5,502.70
Total NSF									
Total Computing			2,555.40	2,004.00	73.30	320.00	360.00	190.00	5,502.70
			2,555.40	4,559.40	4,632.70	4,952.70	5,312.70	5,502.70	

FY04 MC$s by Subsys_Insti | FY04 MC$s by Priority | **FY04 Proj+MC Priority**

U.S. ATLAS Research Program is Evolving

U.S. ATLAS 04-xx

Draft 7.0 July 6, 2004

U.S. ATLAS Research Program

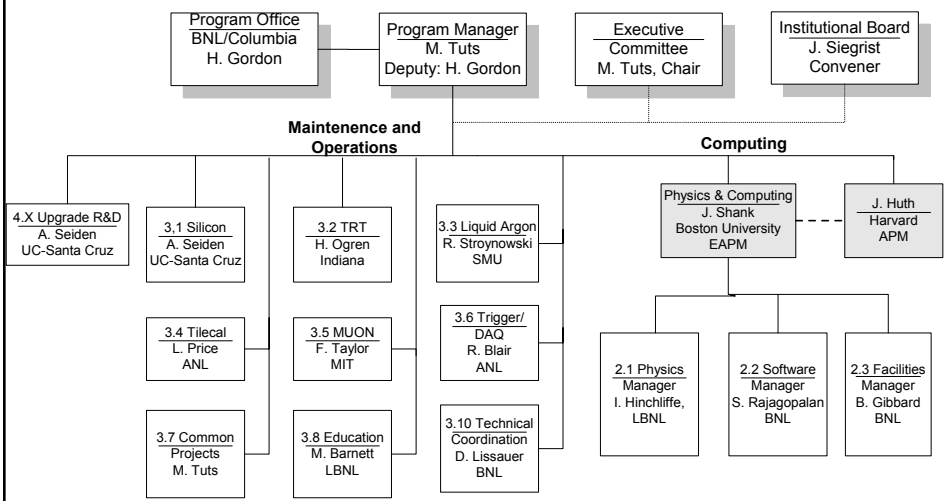
Management Plan

One integrated management plan is being developed for Physics and Computing, M&O, and Upgrade R&D with Mike Tuts. The Collaboration needs to interact next.

Approved xxx 2004

Research Program Organization

U.S. ATLAS Research Program Organization, From Sept. 1, 2004 on

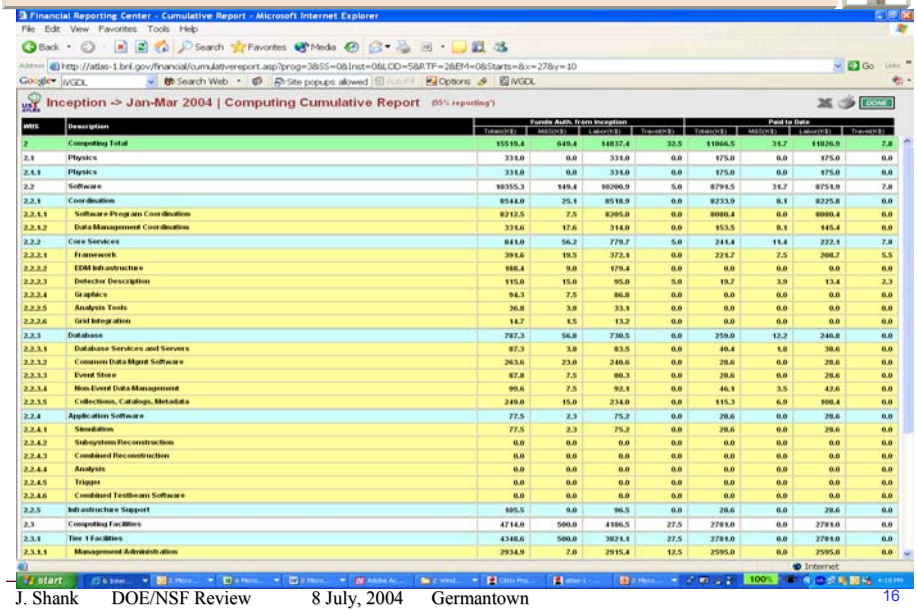


7.1 Prioritization of Different Parts of the Research Program

(New text in the latest Draft)

Acting on the basis of the DOE plus NSF yearly funding guidance, the Research Program Manager sets target budgets for each Level 2 component of the Research Program including M&O, Physics and Computing, and Upgrade R&D. Priority may need to be placed more on one of these areas depending on the level of the guidance and the needs of the experiment. Prioritization established by the RPM will be done in consultation with the Executive Committee.

Financial Reporting is being Done



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TECHNICAL REPORTING CENTER

For the Software Subsystem

User: Jim Shank Change

WBS	L	Description	#	Do
2.2	2	Subsystem Manager's Summary	0	ENTER
2.2.1	3	Coordination		SSMS
2.2.1.1	4	Software Project Coordination	0	ENTER
2.2.1.2	4	Data Management Coordination	0	ENTER
2.2.2	3	Core Services		SSMS
2.2.2.1	4	Framework	0	ENTER
2.2.2.2	4	EDM Infrastructure	0	ENTER
2.2.2.3	4	Detector Description	1	ENTER
2.2.2.4	4	Graphics	0	ENTER
2.2.2.5	4	Analysis Tools	0	ENTER
2.2.2.6	4	Grid Integration	0	ENTER
2.2.3	3	Database		SSMS
2.2.3.1	4	Server and Services	0	ENTER
2.2.3.2	4	Common Data Management	0	ENTER
2.2.3.3	4	Event Store	0	ENTER
2.2.3.4	4	Non-Event Data Management	0	ENTER
2.2.3.5	4	Collections, Catalogs, Metadata	0	ENTER
2.2.4	3	Application Software		SSMS
2.2.4.1	4	Simulation	1	ENTER
2.2.4.2	4	Subsystem Reconstruction	1	ENTER
2.2.4.3	4	Combined Reconstruction	1	ENTER
2.2.4.4	4	Analysis	1	ENTER
2.2.4.5	4	Trigger	1	ENTER
2.2.4.6	4	Combined Testbeam Software	1	ENTER
2.2.5	3	Software Support		SSMS

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Technical Progress Report

02.02 SOFTWARE
Jan-Mar 2004

2.2.2 Core Services
2.2.2.1 Framework

Milestone	Baseline	Previous	Forecast	Status
Integration of Pool Persistency Service	30-Sep-03	--	15-Nov-03	Completed (See #1)
Pile-Up Support for Full Detection Simulation	30-Sep-03	--	30-Mar-04	Completed
Integration with LSF Batch System	30-Mar-04	--	30-Mar-04	Completed
Object Browser Integrated with Analysis Tools	30-Mar-04	30-Mar-04	30-Jul-04	Delayed (See #2)
Physics Analysis Requirements ID	30-Mar-04	30-Mar-04	30-Jun-04	Delayed (See #3)
Pile-up Support for DC2 Production	30-Mar-04	30-Mar-04	30-Jun-04	Delayed (See #4)
Prototype Event Mixing Framework	30-Mar-04	--	30-Mar-04	Completed
Support for Reconstruction on Demand	30-Mar-04	--	30-Dec-04	Delayed (See #5)
Support for Unit Testing	30-Mar-04	--	30-Mar-04	Completed
Evaluate Mech for Job Config/History	30-Jun-04	--	30-Jun-04	On Schedule
Evaluate Scope of Seal Integration	30-Jun-04	--	30-Jun-04	On Schedule
Event Mixing Framework Validated	30-Jun-04	--	30-Jun-04	On Schedule
Integration with Job Management	30-Jun-04	--	30-Jun-04	On Schedule
Physics Analysis Tools Prototype	30-Jun-04	--	30-Jun-04	On Schedule
Pile-up Support for DC2 Production Validated	30-Jun-04	--	30-Jun-04	On Schedule
Integration of Seal plug-in Mechanism	30-Sep-04	--	30-Sep-04	On Schedule
Support Physics Analysis	30-Sep-04	--	30-Sep-04	On Schedule
Synchronize Gaudi Release with	30-Sep-04	--	30-Sep-04	On Schedule

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Technical Progress Report

02.03 FACILITIES
Jan-Mar 2004

2.3.1 Tier 1 Facility

Milestone	Baseline	Previous	Forecast	Status
Tier 1 Fabric Upgrade Fully Operational for DC2	25-Mar-04	--	25-Mar-04	Completed

Richard Baker (Brookhaven National Laboratory)
The second quarter saw the Tier 1 facility achieve full operational capacity to support ATLAS Data Challenge 2. With significant upgrades to the Linux Farm and the storage systems, the facility is now operating at approximately 5% of the expected scale for 2007. The Tier 1 staffing was significantly increased with three new hires (two of whom will start at the beginning of the third quarter). This brings the Tier 1 staffing to a total of 7.5 FTEs.

2.3.1.1 Management/Administration
Richard Baker (Brookhaven National Laboratory)
During the quarter, recruitment efforts were successful with the hire of three new staff members. Gabrielle Carcassi started work in February and will focus on integrating Grid authorization into the Tier 1 fabric. Xin Zhao and Zhenping Liu are expected to start in April, 2004. Xin will focus on direct support of ATLAS Data Challenge 2 and Zhenping will work on Grid integration of the Tier 1 storage systems.

2.3.1.2 Tier 1 Fabric Infrastructure
Richard Baker (Brookhaven National Laboratory)
During the quarter, all of the infrastructure support required for the new Linux farm and disk system hardware was completed. This work consisted mostly of local area network extension.

2.3.1.3 Tier 1 Linux Systems

Project Management

- With the WBS scrubbed…
- MS Project scheduling established…
- Priorities established…

➔we know how to answer questions like “What would you do if the funding in FY05 is increased by 20%?”

➔…and unfortunately “What would you do if the FY05 budget is 15% below expectations?”

FY05 SW Priorities

- Support for existing FY04 personnel under Project Funds
  - 13.8 FTE, $ 2723 k (in FY04$)
- Support move of personnel from PPDG to Project funds
- Increment University based Effort
- Increment ANL Effort on Data Management
- Increment LBNL Effort on Framework
- Athena Framework Grid Integration (~ 3.4M FY04$)
- 0.5 FTE for core sw support (existing personnel)
- 3 FTEs at Universities (Detector Descr., Grid Integr., sub-system DB support, general support for US physicists, etc.
- Total about 4M FY04$.

Base Program Erosion is Hurting the LHC Physics Program

- …at Universities and Labs
- Main source of funding for:
  - Sub-system reconstruction software
  - Physics analysis software and actual analysis
- Re-direction from Tevatron/SLAC will not happen in time
  - Beginning to see some, but…
    - Most Tevatron physicists still want to reap the benefits of their long ordeal
      - Still a couple of years away before moving to LHC
      - This comes late for LHC turn on
- Post-docs/Students needed now

T2 Selection Process

- Important to move on this soon, T2's must be in place in 2005. Fully operational by 2006.
- We will have a review committee to select sites based on proposals submitted by 30 Sept. 2004.
- Call for proposals in draft form now, will go out next week.
- Select at least 3 sites (Oct 2004), maybe 4
  - Rest (1 or 2?) next year.
- Requirements:
  - Local infrastructure with a track record
    - Including ATLAS track record
  - Breadth of program beyond LHC ➔ Open Science Grid
  - E&O

Grids: LCG/OSG

- Still trying to improve the US/LCG interactions
  - More meetings to form the Grid Deployment Area Steering Group
    - Seems to be going forward (buy-in from many groups)
  - Service Challenges
    - Exercise key areas like reliable data transfer, job submission/grid exerciser, security incident response.
- OSG
  - We have had a series of meetings to better define the OSG and map out how we incorporate the existing US grid projects into an OSG.
    - Workshop planned 9-10 Sept, in Boston (probably at Radcliffe)

Computing Model for LHC

- Current model for ATLAS
  - 1st pass reconstruction at CERN
  - ESD's and a fraction of raw data at Tier 1's
  - 250 Hz+2.5 MB raw data rate
- Review in progress for LHC computing baseline – outcome expected in Sept (04)
  - B. Gibbard US LHC representative
  - Report to C-RRB in October meeting

FY05 and beyond

- Major management task for next few months
  - Assigning priorities, establish profile.
  - "target" ramp up to 7795 k$ helps
    - But, many things ramping up in FY05:
      - Tier 1
      - Tier 2's !
      - Software
        - **Ramp things we can not afford in FY04**
        - **Further ramps in University based effort (analysis tools, DB, e.g.)**
      - Production
        - **More DC's ➔ more FTE's for production**
    - Makes FY05 look like a tough year also.

Response to Recommendations in the Jan 2004 DOE/NSF Report(1) -- Facilities

- Pursue interoperability
  - We play key role in the ATLAS production system which is the premiere example of grid interoperability: LCG/Nordugrid/Grid3
- Continue active role in evolution of Grid2003 (OSG)
  - We are very active in keeping Grid3 going
  - We are participating in many meetings to define the OSG
  - We will host the next big OSG meeting 9-10 Sept.
- Tier 1 staffing/Hardware should be given priority
  - We started the hiring ramp early
    - T1 has priority now
- US ATLAS should work with BNL on networking
  - J. Huth: Series of meetings with BNL management (T. Schlagel, B. Scott, B. Gibbard,…) Working on a possible 10 Gbs dark fiber connection.

Response to Recommendations in the Jan 2004 DOE/NSF Report(2) -- Software

- Funding: establish priorities so we can react to funding shortfalls
- Support 2 platforms
  - Mac support being added now
- Existing QA plan should be fully executed
  - Need to schedule code reviews
- Resolve the DB coordination issue
  - Done→new managers
- Need to add user support
  - Analysis Support Group
- HLT/Offline common management
  - Progress being made
- ARDA
  - D. Adams is playing a leading role in shaping ARDA and ATLAS Distributed Analyis in general.

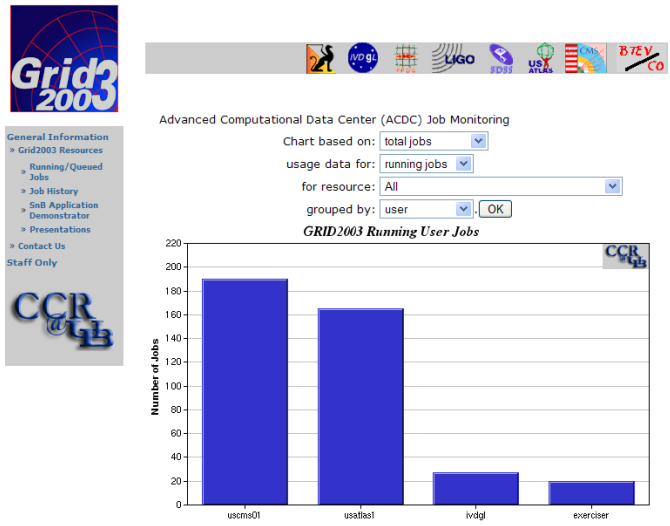
Response to Recommendations in the Jan 2004 DOE/NSF Report(3)--Project Management

- Funding agencies meet the profile
  - New guidance does that
    - We need strong Base Program support too!
- Research Operations Management Plan
  - Needs more S&C
    - In progress
- Strengthen Communications with CERN
  - New roles in ATLAS org. chart.
  - More meetings with LCG
- Control Scope
  - Always a concern. Solution is seen in getting other countries to contribute.
- Base Program Needs to be increased

Conclusions

- Management tools in place to track progress, set priorities, control scope
- Budget pressure still hurts
  - SW scope smaller than we think appropriate
  - Facilities ramping too slow!
    - Hampering our ability to play a leading role
    - T2 ramp is also late
  - University support lacking
    - Will damage us when physics analysis with real data starts.
- Leading the Grid effort
  - US ATLAS drove the upgrade of Grid3+ through the grid3dev project
    - (VDT 1.1.14 based) grid3v2.1, a major upgrade
  - DC2 production starting now
  - Phase 2 of DC2 will involve distributed analysis

DC2 Running on Grid3 (1)



DC2 Running on Grid3 (2)

Job_Num	Age (min)	Job_Id	Username	Resource	Resource_VO	Queue	Percent_Complete (%)
1	3.5	129315	usatlas1	lldimu.alliance.unm.edu	USATLAS	usatlas	32.65
2	1	4033	usatlas1	atlas.bu.edu	USATLAS	dque	3.73
3	1	4034	usatlas1	atlas.bu.edu	USATLAS	dque	3.65
48	1	4085	usatlas1	atlas.bu.edu	USATLAS	dque	0.13
49	0.7	5877	usatlas1	tier2-01.uchicago.edu	USATLAS	condor	0.36
78	0.7	5923	usatlas1	tier2-01.uchicago.edu	USATLAS	condor	0.17
79	0.7	92817	usatlas1	atlas.dpcc.uta.edu	USATLAS	workq	1.95
121	0.7	92898	usatlas1	atlas.dpcc.uta.edu	USATLAS	workq	0.11